



INTERNAL WORKING DOCUMENT

NO. 87-01

1986 AERIAL HERBICIDE APPLICATION PROGRAM

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OPERATIONAL REVIEW

A total of 26,500 hectares of plantations and naturally regenerated cutover areas were proposed for aerial herbicide treatment by the Licensees in 1986. Funding was available to treat approximately 18,000 hectares. Timber Management Branch therefore requested Regional staff to review each Licensee's submission, and reject any areas that did not require immediate treatment. The areas left (20,394 ha) were then prioritized as either (A) definitely needing treatment (18,104 ha) or (B) marginal (2,290 ha), where treatment may or may not be necessary (Table 1).

Timber Management Branch further inspected priority A areas as the spray program progressed and removed another 1,270 ha that did not require treatment in 1986. These reductions allowed the inclusion of some priority B areas. Frequent inclement weather conditions throughout the spray period caused numerous delays which in turn resulted in another 982 ha of primarily isolated priority A areas omitted due to lack of time. In total 16,102 ha were treated or about 89 percent of the scheduled 18,000 ha (Table 2).

Four Bell 206B Jet Ranger helicopters from Trans Maritime Helicopters Ltd. and two Grumman 164-B AgCats from Cedar Brook Farms Ltd. were contracted to carry out the aerial application. The contract rate was \$22.11/ha for the helicopters and \$22.24/ha for the fixed wing. In addition, three spotter aircraft were contracted; two Bell 47G2's from Trans Maritime Helicopters Ltd. at \$85.00 per flying hour plus \$350.00 per day for each machine and one Hughes 300C from Helicraft Ltd. at \$115.00 per flying hour plus \$310.00 per day. Near the end of the spray program an agreement was negotiated with J.D. Irving Ltd. to treat 1,149 ha at DNRE costs.

A total of 71,538 litres of Roundup herbicide, purchased from King Grain Ltd. (Chatham, Ontario) for \$20.88 per litre, was used during the program.

On July 8th an application for a spray permit along with detailed maps of areas requested for treatment was delivered to the Department of Municipal Affairs and Environment. On July 28, 1986 a formal permit was signed by its Minister giving TMB the authority to carry out the operation. Some late changes and revisions to the program, amounting to 300 ha., were also sent to Municipal Affairs and Environment for approval. These revisions were accepted and formal permission granted (Appendix I).

All necessary mixing equipment, vehicles, trailers, etc. had been assembled and made ready at least a week prior to the commencement of the program. A total of 27 casual employees were hired to help carry out the program (Appendix II).

Prior to the commencement of the operational spraying, maps, outlining the spray blocks were sent to Regional DNRE headquarters for dispersal to their District offices. These maps were used by District staff to inform the public as to spray location and timing. Regional staff supplied TMB spray crews with tanker services as well as experienced local staff who assisted in the overall logistics.

Spraying was to commence on August 10, 1986. However, due to the unusual growing season, the planting stock was still in a condition of active growth and the spray operation was delayed until August 19th. During the next 33 days, DNRE spray crews plus J.D.I. Ltd. were able to treat 16,102 hectares. A breakdown of the costs incurred in this program, area treated, rates used, locations, etc. are found in Table 3, Appendix III and Appendix IV.

Table 1. The Licensees proposed herbicide program after Regional review.

LICENSEE	#HA PRIORITY A	#HA PRIORITY B	TOTAL
Upsalquitch	1206		1206
Nepisiguit	1602		1602
Lower Miramichi	787		787
Upper Miramichi	1756	517	2273
Kent	123		123
Queens-Charlotte			
Region 2	197	59	256
Region 3	1777	911	2688
Region 4	1624		1624
TOTAL	<u>3598</u>	<u>970</u>	<u>4568</u>
Fundy			
Region 3	3161	270	3431
Region 4	277	370	584
TOTAL	<u>3438</u>	<u>577</u>	<u>4015</u>
York	935		935
Carleton	954	226	1180
Restigouche-Tobique	3705		3705
TOTAL	18104	2290	20394

Table 2. Summary of the number of hectares of priority A and B areas completed and the number of hectares of priority A areas omitted.

LICENSEE	AREA COMPLETED		PRIORITY A AREAS OMITTED		TOTAL
	PRIORITY A	PRIORITY B	NO NEED	NO TIME	
Upsalquitch	612		192	402	1206
Nepisiguit	1365		317		1681
Lower Miramichi	795				795
Upper Miramichi	1620		144		1764
Kent				123	123
Queens-Charlotte					
Region 2	124		158		282
Region 3	1649	821			2470
Region 4	1685				1685
TOTAL	3458				4437
Fundy					
Region 3	2020	240	118	27	2378
Region 4	234		70		304
TOTAL	2254		188		2682
York	906			96	1002
Carleton	828	88	53		969
Resigouche-Tobique	3116		95	427	3668
TOTAL	14953	1149	1270	982	18354
	16102		2252		

Table 3. 1986 Herbicide Program Cost Analysis

			TOTAL COST(\$)	COST/HA(\$)
DNRE	CHEMICAL	Roundup	1,467,610*	98.15
14953 ha treated	AIRCRAFT	Sprayers	356,726	23.86
		Spotters	76,406	5.11
			<u>433,132</u>	<u>28.97</u>
	LABOUR	Salaries	81,628	5.46
		Motels	30,951	2.07
		Expenses	19,936	1.33
		Groceries	5,238	.35
			<u>137,753</u>	<u>9.21</u>
	VEHICLES	Rental	51,444	3.44
		Repairs	4,366	.29
		Gas, Oil, etc.	12,098	.81
		Tires	1,023	.07
			<u>68,931</u>	<u>4.61</u>
	OTHER	Mixing Equipment	6,711	.45
		Safety Equipment	2,207	.15
		Other Supplies	4,021	.27
		Communications	4,931	.33
			<u>17,870</u>	<u>1.20</u>
	TOTAL		2,125,296	142.14
JDI	CHEMICAL	Roundup	26,092*	
1149 ha treated		(supplied by DNRE)		
		DNRE PAYMENT TO JDI FOR SPRAY COSTS (DNRE cost less chemical cost)	137,227	
	TOTAL		163,319	
16102 ha treated			\$2,288,615	\$142.14
	HERBICIDE	Salaries	11,766	
	SURVEYS	Motels	1,121	
		Expenses	1,612	
		Gas, oil, etc.	3,249	
			<u>17,748</u>	1.10
	TOTAL		2,306,363	143.24
	**PERMANENT	Salaries	14,546	
	STAFF	Expenses	6,145	
			<u>20,691</u>	1.28
	TOTAL		\$2,327,054	\$144.52

* A total of 75627 litres of Roundup was purchased for the 1986 spray program at a cost of \$1,579,093. However, due to a reduced number of completed sprayed hectares, 4090 litres were not used. This cost (\$85,391) will be carried over into the 1987 program.

** Includes salaries, meals and accomodations during the operation spray period (August 6 to September 21).

APPENDIX I

Permits issued by the Dept. of Municipal Affairs and Environment

**MINISTER OF MUNICIPAL AFFAIRS
AND ENVIRONMENT**
Province of New Brunswick



**MINISTRE DES AFFAIRES MUNICIPALES
ET DE L'ENVIRONNEMENT**
Province du Nouveau-Brunswick

P.O. Box/C.P. 6000, Fredericton, N.B., Canada, E3B 5H1 Tel. (506) 453-2558

July 28, 1986

Department of Natural Resources & Energy
Timber Management Branch
P. O. Box 6000
Fredericton, N. B.
E3B 5H1

Dear Sirs:

This will acknowledge receipt of the July 8, 1986 application from the Timber Management Branch of the Department of Natural Resources & Energy.

In accordance with Section 12(1) of the Pesticides Control Act, this Permit No. P81, hereby authorizes the aerial application of Roundup (P.C.P. No. 13,644) to 18,000 hectares of forest land for site preparation/conifer release as outlined in your submission, subject to the following conditions:

1. That only the above pesticide is permitted and must be used according to label instructions;
2. That additional areas and/or pesticides may be added to your permit only after written approval has been given by the Minister;
3. That a setback from occupied habitation of 155 m be maintained for Roundup;
4. That only those areas approved by the Pesticides Advisory Board be treated;
5. That no spraying be conducted within 65 m of bodies of water with the exclusion of intermittent streams which are dry during the time of application;

6. That no spraying be conducted when wind speeds at the treatment area exceed 16 km/hr;
7. That no spraying be conducted within 3.2 km upstream from the point of extraction of any municipal surface drinking water supplies;
8. That no spraying be conducted within 50 m of property borders where there exists the possibility of spray drifting onto land not owned or controlled by you;
9. That the areas to be treated are clearly identified for the pilot;
10. That access to the areas being treated with Roundup be controlled and that signs be posted for the season;
11. That no human flagmen be used;
12. That all personnel involved in the supervision of mixing and loading operations; all personnel involved in the guidance of the aircraft administering the pesticide; and, all personnel applying the pesticide, must hold a valid Class A certificate;
13. That all personnel involved in the mixing and loading of pesticides must wear coveralls, footwear and gloves impermeable to the pesticide, splash glasses and a half-faced respirator with NIOSH approved pesticide cartridges;
14. That the Chairman or staff of the Toxic Substances Section be notified a minimum of 48 hours prior to the intended date of the commencement of your program;
15. That cooperation be given to any monitoring personnel or inspector;

16. That the procedure for the disposal of empty pesticide containers be strictly adhered to;
17. That a summary of pesticides used for 1986 be forwarded to the Chairman of the Pesticides Advisory Board no later than December 31, 1986; and,
18. That this permit will expire September 30, 1986.

Yours truly,

R. C. JACKSON
Minister

MINISTER OF MUNICIPAL AFFAIRS
AND ENVIRONMENT
Province of New Brunswick



MINISTRE DES AFFAIRES MUNICIPALES
ET DE L'ENVIRONNEMENT
Province du Nouveau-Brunswick

P.O. Box/C.P. 6000, Fredericton, N.B., Canada, E3B 5H1 Tel. (506) 453-2558

September 22, 1986

Department of Natural Resources & Energy
Timber Management Branch
P. O. Box 6000
Fredericton, N. B.
E3B 5H1

Dear Sirs:

Please be advised that an additional 300 hectares of forested land in the Fundy area has been added to your Permit No. P81 and that all conditions of P81 apply to these additions.

Yours truly,

A handwritten signature in dark ink, appearing to read "R.C. Jackson".

R. C. JACKSON
Minister

APPENDIX II
TMB Spray Crew Organization

1986 Herbicide Spray Operation
Organization

M.K. Barteaux
Mgr. Reforestation and Silviculture

Mack McDonald
Chief of Operations
Supervisor Crew #1
(2 Bell 206-B sprayers and 1 Bell 4762 spotter)

Ground Supervisor - Richard Courier

John Reed
Supervisor Crew #2
(2 AgCat sprayers and
1 Hughes 300C spotter)

Don Carlin
Supervisor Crew #3
(2 Bell 206-B sprayers and
1 Bell 47G2 spotter)

Ground
Supervisor - Len Mosher

Ground
Supervisor - Chuck Harding

Each ground crew also consisted of a mixer, a loader, two truck drivers and 4 road blockers.

APPENDIX III

Area sprayed in hectares by herbicide, rate and volume delivered

1986 HERBICIDE PROGRAM

HERBICIDE	RATE (L/ha)	AREA (HA)	SPRAY VOLUME (L/HA)	TOTAL VOLUME DELIVERED (L)	OVERLAP (%)
Roundup	3.0	1149	46.7	59024	+10
	3.7	1431	37.4	60168	+12
	4.2	11337	37.4	451547	+ 6
	4.5	433	37.4	16785	+ 4
	4.9	1752	37.4	82334	+26
TOTAL		16102		669858	

APPENDIX IV
Area Sprayed in hectares, by Licensee

1986 HERBICIDE PROGRAM

LICENSEE: UPSALQUITCH REGION: 1

AREA #	LOCATION	ORIGINAL AREA (HA)	TREATED AREA (HA)	RATE OF HERBICIDE (L/HA)	BLOCK #	DATES SPRAYED	VOLUME DELIVERED (L)	APPLICATOR'S FLIGHT TIME
1-1-45	Arseneault Brook	112	112	4.2	1125	Sept 4 am; Sept 5 am	4 069	CEF1 1 hr 33 min
1-1-93	Meadow Brook	50	50	4.2	0068,0069,0071	Aug 21 am	2 267	CEF 2 hrs 27 min
1-1-69	Black Lake	166	166	4.2	0032,0040,0064,1116	Aug 21 am; Aug 27 am	6 418	CEF 3 hrs 25 min
1-1-92	Nine Mile Brook	132	132	4.2	10E1	Aug 21 am, pm; Aug 23 am	3 917	CEF 2 hrs 42 min
1-1-46	Little Popelogan Bk.	30	30	4.2	1124	Sept 5 am	1 049	CEF 59 min
1-1-68	Norton Gulch	122	122	4.2	0054	Sept 5 am	4 440	CEF 2 hrs 36 min
TOTAL		612	612	4.2			22 160	13 hrs 42 min

1 CEF refers to the Ag Cat sprayers contracted from Cedar Brook Farms

1986 HERBICIDE PROGRAM

LICENSEE: NEVISIGUITT REGION: 1

AREA #	LOCATION	ORIGINAL AREA (HA)	TREATED AREA (HA)	RATE OF HERBICIDE (L/HA)	BLOCK #	DATES SPRAYED	VOLUME DELIVERED (L)	APPLICATOR'S FLIGHT TIME
1-2-118	Caribou Road	257	257	4.2	0230, 0253, 0254	Sept 7 am; Sept 8 am, pm	9 697	CHF 5 hrs 2 min
1-2-141	Forty Mile Brook	26	26	4.2	9656	Sept 8 pm	1 287	CHF 29 min
1-2-140	S.Br. Forty Mile Brook	44	44	4.2	0235	Aug 31 am	1 665	CHF 1 hr 54 min
1-2-95	Rd. to Resources	156	170	4.2	0256, 0260	Sept 7 am	6 435	CHF 2 hr 16 min
1-2-143	Arseneau Rd.	26	26	4.2	9711	Sept 9 am	1 060	CHF 1 hr 3 min
1-2-94	Rd. to Resources	84	84	4.2	0005	Aug 23 am	3 029	CHF a hr 53 min
1-2-117	Caribou Rd.	193	215	4.2	0044, 0259A	Aug 23 am; Aug 27 am Aug 31 am; Sept 5 am	8 362	CHF 5 hrs 47 min
1-2-119	Brunswick Mines Loop	47	52	4.2	0279, 9684	Sept 9 am	1 970	CHF 1 hr 5 min
1-2-166	Taylor Brook	101	101	4.2	9585	Sept 18 am	4 085	CHF 2 hrs 35 min
1-2-137	Moose Brook	336	389	4.2	001, 0258, P-5-79	Aug 23 pm; Aug 26 pm Aug 31 pm; Sept 3 pm Sept 4 am, pm	14 161	CHF 7 hrs 44 min
TOTAL		1 270	1 364	4.2			51 751	29 hrs 48 min

1966 HERBICIDE PROGRAM

LICENSEE: LOWER MIRAMICHI REGION: 1, 2

AREA #	LOCATION	ORIGINAL AREA (HA)	TREATED AREA (HA)	RATE OF HERBICIDE (L/HA)	BLOCK #	DATES SPRAYED	VOLUME DELIVERED (L)	APPLICATOR'S FLIGHT TIME
1-3-145	Middle Brook	12	12	4.2	0313	Sept 9 am	454	CHF 30 min
2-3-229	Stoney Brook	237	237	4.2	0315, 0316, 0317 0318, 0319	Sept 18 pm Sept 19 am, pm	10 295	CHF 5 hrs 3 min
2-3-321	Blackville Fire Tower	92	66	4.2	0060	Sept 8 am	2 951	TMH ² 2 hrs 25 min
2-3-339	Salmon Brook	45	45	4.2	0348	Sept 7 pm	2 724	TMH 41 min
2-3-340	E. Br. Sabies R.	81	81	4.2	0349	Sept 7 pm	3 632	TMH 51 min
2-3-376	W. Br. Six Mile Bk.	287	321	4.2	0378, 0614, 0615	Sept 5 pm; Sept 7 am	12 712	TMH 3 hrs 48 min
2-3-377	Six Mile Brook	33	33	4.2	0327, 0351	Sept 8 am	1 362	TMH 1 hr 1 min
TOTAL		787	795	4.2			34 130	14 hrs 19 min

2 TMH refers to the Bell 206B Jet Ranger helicopters contracted from Trans Maritime Helicopters

1966 HERBICIDE PROGRAM

LICENSEE: UPPER MIRAMICHI REGION: 1, 2

AREA #	LOCATION	ORIGINAL AREA (HA)	TREATED AREA (HA)	RATE OF HERBICIDE (L/HA)	BLOCK #	DATES SPRAYED	VOLUME DELIVERED (L)	APPLICATOR'S FLIGHT TIME
1-4-187	W. Br S. Nepisiguit R.	185	167	4.2	0510, 0548	Sept 2 am; Sept 4 am	6 891	CHF 4 hrs 37 min
1-4-162	Sixty-Nine Mile Bk.	90	90	4.2	0547	Sept 1 am	3 328	CHF 2 hrs 44 min
2-4-189	N. Little River Lk.	205	205	4.2	0012, 0013	Sept 19 am, pm	6 208	CHF 1 hr 43 min
2-4-210	Little N. Br. Big Sevogle R.	121	121	4.2	0540, 0559	Sept 10 pm Sept 18 am, pm	4 620	CHF 2 hrs
2-4-191	N. Br. Tomoganops R.	485	510	4.2	0506, 0016 0035, 0541	Sept 10 am; Sept 15 am Sept 16 am; Sept 18 am	19 608	CHF 10 hrs 43 min
2-4-245	Barracks Bk.	487	487	4.2	0516, 0517	Sept 15 am; Sept 16 am Sept 18 am, pm Sept 19 am	16 601	CHF 8 hrs 6 min
2-4-280	McKendrick Lk.	40	40	4.2	0502	Sept 19 am	1 590	CHF 1 hr 22 min
TOTAL		1 613	1 620	4.2			58 846	31 hrs 15 min

1986 HERBICIDE PROGRAM

LICENSEE: QUEENS-CHARLOTTE

REGION: 2, 3, 4

AREA #	LOCATION	ORIGINAL AREA (HA)	TREATED AREA (HA)	RATE OF HERBICIDE (L/HA)	BLOCK #	DATES SPRAYED	VOLUME DELIVERED (L)	APPLICATOR'S FLIGHT TIME
2-6-393	Michigan Brook	39	124	4.2	7998, 9995	Sept 8 pm	6 356	TMH 1 hr 38 min
3-6-378	Pettipas	276	282	3.0	0117	Sept 7 pm; Sept 8 am	12 255*	JDI N/A
3-6-397	McLeod Brook	117	128	3.0	0172	Sept 7 pm	7 560*	JDI N/A
3-6-398	Salmon River	348	361	3.0	0050, 0060, 0360	Sept 7 am, pm Sept 8 am	19 600*	JDI N/A
3-6-398	Salmon River	1 075	1 075	4.2	0056	Aug 20 pm; Aug 21 am, pm Aug 23 am, pm	39 044	TMH 9 hrs 5 min
3-6-399	Bronson	600	472	4.2	0208, 9988	Aug 26 am, pm; Aug 27 am	21 197	TMH 5 hrs 22 min
3-6-418	Oxy Brook	152	152	4.2	0206, 0207, 0210	Aug 23 am, pm; Aug 27 am	4 086	TMH 2 hrs 26 min
REGION 3 TOTAL		741 1 827 2 568	771 1 699 2 470	3.0 4.2			39 445 64 327 103 772	N/A 16 hrs 53 min

* Treated by J.D. Irving using a spray volume of 46.7 litres per hectare

1986 HERBICIDE PROGRAM

LICENSEE: QUEBENS-CHARLOTTE REGION: 2, 3, 4
(continued)

AREA #	LOCATION	ORIGINAL AREA (HA)	TREATED AREA (HA)	RATE OF HERBICIDE (L/HA)	BLOCK #	DATES SPRAYED	VOLUME DELIVERED (L)	APPLICATOR'S FLIGHT TIME
4-6-635	Pleasant Ridge	59	59	4.2	9939	Aug 31 am, pm	2 653	TMH 1 hr 11 min
4-6-606	Shin Creek Rd.	144	175	3.7	0010, 0151	Sept 1 am	8 172	TMH 2 hrs 48 min
4-6-622	Deer Lake	451	451	4.2	TP-106-S1; TP-52-80 TP-107-S1; TP-110-S1	Aug 31 am, pm; Aug 31 am	18 745	TMH 5 hrs 3 min
4-6-636	Gurdy Lake	221	242	3.7	0009, 0027, 9920	Aug 29 pm; Aug 30 am Aug 31 am, pm; Sept 1 am	11 373	TMH 3 hrs 12 min
4-6-637	West Long Lake	50	50	3.7	9935	Aug 30 am	2 613	TMH 1 hr 7 min
4-6-650	Victoria Lake	497	528	3.7	9938, 0145 TP-67-S2, 0166	Aug 28 pm; Aug 29 am, pm	19 388	TMH 4 hrs 56 min
4-6-649	Pocologan Lake	202	180	4.2	9947	Aug 26 pm; Aug 28 am	8 436	TMH 1 hr 59 min
REGION 4 TOTAL		912 712 1 634	995 690 1 685	3.7 4.2			41 546 29 834 71 380	12 hrs 3 min 8 hrs 13 min 20 hrs 16 min
TOTAL		741 912 2 578 4 251	771 995 2 513 4 279	3.0 3.7 4.2			39 445 41 546 100 517 181 508	N/A 12 hrs 3 min 26 hrs 44 min 38 hrs 47 min

1986 HERBICIDE PROGRAM

LICENSEE: FUNDY REGION: 3, 4

AREA #	LOCATION	ORIGINAL AREA (HA)	TREATED AREA (HA)	RATE OF HERBICIDE (L/HA)	BLOCK #	DATES SPRAYED	VOLUME DELIVERED (L)	APPLICATOR'S FLIGHT TIME
3-7-438	Spring Brook	117	121	3.0	9799	Sept 7 am	5 670*	JDI N/A
3-7-510	Crooked Brook	25	24	3.0	0005	Sept 7 am	1 417*	JDI N/A
3-7-532	Morrison Brook	186	188	3.0	9774, 9775	Sept 7 am	10 678*	JDI N/A
3-7-462	Alward Burn	37	45	3.0	9796	Sept 7 am	1 814*	JDI N/A
3-7-578	Donagal	189	174	4.2	9772, 9798	Sept 3 pm; Sept 4 am	8 626	TWH 2 hrs 40 min
3-7-579	Sproule	143	90	4.2	9989	Sept 4 am	4 974	TWH 1 hr 53 min
3-7-580	Square Lake	301	256	4.2	9770, 9793	Sept 4 pm; Sept 5 am	6 766	TWH 2 hrs 20 min
3-7-598	Shepody Road	1 652	683	4.2	9768, 9777, 9780	Aug 29 am, pm Aug 30 am; Aug 31 am	24 946	TWH 5 hrs 47 min
3-7-600	Livingston Lake	29	29	4.2	9792	Sept 4 pm	1 362	TWH 40 min

* Treated by J.D. Irving using a spray volume of 46.7 litres per hectare

1986 HERBICIDE PROGRAM

LICENSÉE: FUNDY REGION: 3, 4
(continued)

AREA #	LOCATION	ORIGINAL AREA (HA)	TREATED AREA (HA)	RATE OF HERBICIDE (L/HA)	BLOCK #	DATES SPRAYED	VOLUME DELIVERED (L)	APPLICATOR'S FLIGHT TIME
3-7-614	Bonnell Brook	132	173	4.2	9786	Sept 2 am	7 405	TMH 1 hr 56 min
3-7-615	Goose Creek	282	302	4.2	9781, 0066, 9889, 0008	Aug 30 am Aug 31 am, pm; Sept 1 am	15 556	TMH 4 hrs 11 min
3-7-630	Four Mile Brook	135	175	4.2	0012, 0077	Sept 1 am	6 810	TMH 3 hrs 5 min
REGION 3 TOTAL		365	378	3.0			19 579	N/A
		<u>2 863</u> 3 228	<u>1 882</u> 2 260	4.2			<u>76 445</u> 96 024	22 hrs 32 min 22 hrs 32 min
4-7-412	McGivney	196	123	4.2	9967, 9969, 0106	Sept 9 am	5 448	TMH 1 hr 40 min
4-7-432	S. McCallum Brook	70	91	4.2	9966	Sept 9 pm, Sept 10 am	4 158	TMH 57 min
4-7-456	Clare Brook	11	20	4.2	9964	Sept 9 am	908	TMH 13 min
REGION 4 TOTAL		277	234	4.2			10 514	2 hrs 50 min
TOTAL		365	378	3.0			19 579	N/A
		<u>3 140</u> 3 505	<u>2 116</u> 2 494	4.2			<u>86 999</u> 106 538	25 hrs 22 min 25 hrs 22 min

1986 HERBICIDE PROGRAM

LICENSER: YORK REGION: 4

AREA #	LOCATION	ORIGINAL AREA (HA)	TREATED AREA (HA)	RATE OF HERBICIDE (L/HA)	BLOCK #	DATES SPRAYED	VOLUME DELIVERED (L)	APPLICATOR'S FLIGHT TIME
4-8-390	Rocky Brook Lake	182	182	4.2	0006,0007,0008	Sept 2 am; Sept 3 am, pm	8 815	TMH 2 hrs 19 min
4-8-409	Lower Lake	85	100	3.7	1000	Aug 23 am	3 980	TMH 1 hr 11 min
4-8-410	Napadogan Brook	241	251	3.7	1003,0009	Aug 22 pm; Aug 23 am Sept 2 am	11 010	TMH 2 hrs 29 min
4-8-430	Grand John Brook	85	85	3.7	0010	Sept 1 pm	3 632	TMH 1 hr 17 min
4-8-451	Neckawic Stream	117	142	4.2	0003,0004	Sept 4 pm Sept 6 pm; Sept 7 am	7 908	TMH 2 hrs 12 min
4-8-478	Mactaquac Stream	129	146	4.2	0013,0014	Sept 4 pm	5 273	TMH 1 hr 19 min
TOTAL		411 428 839	436 470 906	3.7 4.2			18 622 21 996 40 618	4 hrs 57 min 5 hrs 50 min 10 hrs 47 min

1966 HERBICIDE PROGRAM

LICENSEE: CARLETON REGION: 4

AREA #	LOCATION	ORIGINAL AREA (HA)	TREATED AREA (HA)	RATE OF HERBICIDE (L/HA)	BLOCK #	DATES SPRAYED	VOLUME DELIVERED (L)	APPLICATOR'S FLIGHT TIME
4-9-329	Elowdown Brook	190	95	4.2	9005	Aug 20 pm	3 340	TMH 55 min
4-9-408	Becaguimac Stream	71	71	4.2	0144	Sept 6 pm; Sept 7 am	3 558	TMH 1 hr 55 min
4-9-369	Nashwaak Lake	281	347	4.2	0010, 0011, 0012, 0021	Aug 21 am	9 880	TMH 2 hrs 4 min
4-9-390	McLean Brook	107	107	4.2	0023	Aug 21 pm	3 560	TMH 1 hr 8 min
4-9-392	McGivney Brook	283	262	4.2	0024, 0034, 0009	Sept 10 am, pm	9 782	TMH 4 hrs
4-9-450	McDonald Brook	34	34	4.2	0145	Sept 7 am	1 589	TMH 27 min
TOTAL		966	916	4.2			31 709	10 hrs 29 min

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LICENSEE: RESNIGOUCHE-TOBIQUE

REGION: 5

AREA #	LOCATION	ORIGINAL AREA (HA)	TREATED AREA (HA)	RATE OF HERBICIDE (L/HA)	BLOCK #	DATES SPRAYED	VOLUME DELIVERED (L)	APPLICATOR'S FLIGHT TIME
5-10-60	Goussmitz R.	570	591	4.9	0147 to 0150 0208, 0210, 0229, 0230 0231, 0236	Sept 10 am; Sept 16 am Sept 17 am, pm Sept 18 am	29 019	TMH 9 hrs
5-10-59	Moose Valley	95	95	4.2	0215	Sept 15 am	4 851	TMH 1 hr 16 min
5-10-38	Clearwater Lk. Bk.	186	192	4.9	0132, 0133, 0134	Sept 18 am	9 174	TMH 3 hrs 31 min
5-10-37	Portage Brook	62	62	4.2	0113, 0114, 0121	Sept 17 am	3 178	TMH 1 hr 28 min
5-10-18	Indian Brook	154	165	4.2	0111, 0112	Sept 15 am Sept 16 am Sept 18 am	8 967	TMH 2 hrs 13 min
5-10-19	Baines Reef Gulch	179	179	4.2	0115, 0116, 0117, 0118	Sept 17 am, pm Sept 18 am	9 534	TMH 3 hrs 58 min
5-10-129	Quisibis R.	74	66	4.2	0160, 0161	Sept 19 am	2 724	TMH 1 hr 46 min
5-10-105	Richards Brook	113	120	4.2	0168, 0169, 0170 0174, 0176 0180, 0182	Sept 19 am	5 902	TMH 3 hrs 29 min
5-10-105	Richards Brook	51	59	4.9	0171, 0183	Sept 19 am	2 650	TMH 50 min
5-10-104	McFarlane	70	70	4.9	0186, 0206	Sept 19 am	3 308	TMH 1 hr 10 min

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LICENSEE: RESTIGOUCHE-TORIQUE REGION: 5
(continued)

AREA #	LOCATION	ORIGINAL AREA (HA)	TREATED AREA (HA)	RATE OF HERBICIDE (L/HA)	BLOCK #	DATES SPRAYED	VOLUME DELIVERED (L)	APPLICATOR'S FLIGHT TIME
5-10-82	Tribodeau River	81	81	4.9	0201, 0202, 0203	Sept 19 am	4 086	TMH 1 hr 14 min
5-10-84	McLaughlin Brook	124	126	4.9	0142, 0139, 0190, 0199 0200	Sept 18 am, pm	6 403	TMH 1 hr 36 min
5-10-83	Camp 68	611	633	4.9	0140, 0141, 0196, 0197 0211, 0214, 0220, 0224 0225, 0138	Sept 8 am, pm Sept 9 am, pm	27 694	TMH 6 hrs 40 min
5-10-86	Restigouche River	38	17	4.2	0233	Aug 12 am	908	TMH 1 hr 6 min
5-10-134	Big Cedar Brook	226	227	4.2	0144, 0154	Aug 10 pm; Sept 20 am	7 415	TMH 1 hr 48 min
5-10-185	Four Mile Brook	133	133	4.5	0500, HN-501	Aug 28 pm; Aug 30 am	4 500	TMH 1 hr 55 min
5-10-186	Bubar Brook	54	52	4.5	0501	Aug 28 pm; Aug 30 am	2 250	TMH 52 min
5-10-206	McKeen Brook	158	158	4.5	0507, 0510, 0509, 0506	Aug 31 am, pm; Sept 1 am	6 300	TMH 2 hrs 42 min
5-10-207	Serpentine River	26	26	4.5	0511	Aug 31 pm; Sept 1 am	1 050	TMH 41 min
5-10-224	Serpentine Lake	64	64	4.5	0512	Sept 1 am	2 685	TMH 1 hr 21 min

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LICENSEE: RESTIGOUCHE-TORIQUE REGION: 5
(continued)

AREA #	LOCATION	ORIGINAL AREA (HA)	TREATED AREA (HA)	RATE OF HERBICIDE (L/HA)	BLOCK #	DATES SPRAYED	VOLUME DELIVERED (L)	APPLICATOR'S FLIGHT TIME
TOTAL		941 435 1 693 3 069	931 433 1 752 3 116	4.2 4.5 4.9			43 479 16 785 82 334 142 598	16 hrs 24 min 7 hrs 31 min 24 hrs 1 min 47 hrs 56 min